**AP Biology Unit One Test Review Sheet**

What are atoms composed of? Know the charge of these subatomic particles, their location, and their relative size.

Of the three subatomic particles, which two can change and still have the atom maintain the properties of the element? What is the atom called when each of these two things change?

What are elements? What makes each element unique?

What are the four primary elements that make up 96% of living matter?

What are the four primary elements that make up most of the remaining 4%?

What is the difference between covalent (polar and nonpolar), ionic, and hydrogen bonds? Somewhere in this answer, make sure you discuss electronegativity (it may not apply to all bonds).

Why do atoms bond together?

Be able to explain the unique properties of water and why they occur.

What is the difference between hydrophilic and hydrophobic substances?

Be able to explain the pH scale, what the effect OH and H ions have on the pH number, and what the change in pH number means to both the OH and H concentration.

In biology, what is the role of buffers? In general, how do they work?

What is organic chemistry the study of? Why is carbon so important? What types of bonds do carbon atoms form?

Please know the basics about the functional groups (be able to recognize them) we discussed and general properties about each group.

Know the basic structure of carbohydrates (including monosaccharides), proteins (including the basics of amino acids - structure and role of functional groups), lipids, and nucleic acids.

Be familiar with the differences between alpha glucose and beta glucose including the difference between the glycosidic linkages. How do these differences affect the way you digest food?

Be familiar with the different monomers that create polymers and the types of reactions that create and break down polymers.

Know the roles, composition, and where you would find chitin, cellulose, glycogen, and starch in nature.

Know the difference between saturated fats and unsaturated fats.

Know the structural basis of a steroid molecule.

How many amino acids are there?  How are they all the same?  How are they all different?

Know the basic bonds that hold polymers of carbohydrates and proteins together.

Be able to explain the four levels of protein structure, what the unique features are of each level, and the bonds that are responsible for the shape of the proteins at the various levels of structure.